# CLAIMS

What is claimed is:

1    1.      An adapter that comprises

2         a lane receiver configured to receive a differential signal on a differential pair of

3                 conductors, and configured to convert the differential signal into a sequence of code

4                 symbols;

5         a decoder configured to decode the sequence of code symbols to produce a sequence of

6                 received symbols; and

7         a circuit configured to determine if the sequence of received symbols is incorrect due to

8                 inversion of the differential signal, wherein the lane receiver is configured to

9                 correct for inversion of the differential signal if the circuit determines inversion

10                exists.

1    2.      The adapter of claim 1, wherein the decoder decodes the code symbols from a running-

2   disparity code having a positive running disparity symbol and a negative running disparity symbol

3   for each input symbol.

1    3.      The adapter of claim 2, wherein the circuit is configured to examine a decoded training

2   sequence having a start symbol and a training symbol to determine if inversion exists.

1    4.      The adapter of claim 3, wherein the start symbol has a positive running disparity symbol

2   that is the inverse of the negative running disparity symbol for the start symbol.

1  5.    The adapter of claim 3, wherein the inverse of the positive running disparity symbol for the

2  training symbol decodes to a symbol different than the training symbol, and wherein the inverse of

3  the negative running disparity symbol decodes to a symbol different than the training symbol.


1  6.    The adapter of claim 5, wherein the circuit locates the start symbol, identifies the training

2  symbol relative to the start symbol, determines if the training symbol has an incorrect value

3  corresponding to the inverse of the positive or negative running disparity symbol for the training

4  symbol.


1  7.    The adapter of claim 6, wherein the circuit toggles correction of differential signal

2  inversion if the training symbol has an incorrect value corresponding to the inverse of the positive

3  or negative running disparity symbol for the training symbol.


1  8.    The adapter of claim 1, wherein the decoder is an 8B/10B code decoder.


1  9.    The adapter of claim 1, further comprising:

2      a second lane receiver configured to receive a second differential signal on a second

3          differential pair of conductors, and configured to convert the second differential

4          signal into a second sequence of code symbols; and

5      a second decoder configured to decode the second sequence of code symbols to produce a

6          second sequence of received symbols,

7      wherein the circuit is further configured to determine if the second sequence of received

8          symbols is incorrect due to inversion of the second differential signal, wherein the

9       second lane receiver is configured to correct for inversion of the second differential

10      signal if the circuit determines inversion exists.


1    10. The adapter of claim 9, wherein the circuit is configured to combine the sequences of

2    received symbols to produce an output symbol stream.


1    11. A method of correcting for differential signal inversion, wherein the method comprises:

2        converting a differential signal into a sequence of code symbols;

3        decoding the sequence of code symbols to form a sequence of received symbols; and

4        determining if the sequence of received symbols is incorrect due to inversion of the

5            differential signal.


1    12. The method of claim 11, further comprising:

2        inverting the sequence of code symbols if inversion is determined.


13. The method of claim 11, wherein the code symbols are determined according to a running

2.   disparity code having a positive running disparity symbol and a negative running disparity symbol

3    corresponding to each input symbol.


1    14. The method of claim 13, and wherein the determining includes:

2        identifying a training symbol sequence in the sequence of received symbols, said training

3            symbol sequence having a start symbol and a training symbol.

1    15.    The method of claim 14, wherein the start symbol has a positive running disparity code

2    symbol that is the inverse of the negative running disparity code symbol for the start symbol, and

3    wherein the inverse of the positive and negative running disparity symbols for the training symbol

4    decode to one or more incorrect symbols different from the training symbol.


1    16.    The method of claim 15, wherein the determining further includes:

2            determining if the training symbol has been decoded as one of said incorrect symbols.


1    17.    The method of claim 13, wherein said running disparity code is an 8B/10B code.


1    18.    The method of claim 11, further comprising:

2            converting a second differential signal into a second sequence of code symbols;

3            decoding the second sequence of code symbols to form a second sequence of received

4                symbols; and

5            determining if the second sequence of received symbols is incorrect due to inversion of the

6                second differential signal.


1    19.    The method of claim 18, further comprising:

2            inverting sequences of code symbols for which the sequence of received symbols is

3                determined incorrect due to inversion; and

4            combining the sequences of received signals to form a single output symbol stream.